

ART 34 AMDT

Claims as amended in PCT Chapter II proceedings

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## Claims

1. A process for preparing modified metal oxides or  
5 metal aquoxides that are dispersible in organic  
solvents characterised by the following steps  
(I) by reaction of  
(A) one or a plurality of metal oxide(s) or metal  
aquoxide(s) having a crystallite size of 4 to  
10 100 nm, determined by x-ray diffraction on the  
021 reflex, and a particle size of 5 to 500 nm,  
determined by photon correlation spectroscopy  
in dispersion  
with  
15 (B) one or a plurality of organic sulfonic acid(s),  
where  
(i) in case the reaction takes place in a  
mainly aqueous medium or in the absence of  
a diluent/solvent, the organic sulfonic  
20 acid is a mono-, di-, or trialkylbenzene  
sulfonic acid, wherein the alkyl resi-  
due(s) are C<sub>1</sub> to C<sub>6</sub> alkyl residue(s) and  
wherein the component (A), calculated as  
metal oxide, and (B) are used at weight  
25 ratios from 98:2 to 70:30, or  
(ii) in case the reaction takes place in the  
presence of an organic aprotic solvent or  
an organic protic solvent, the organic  
sulfonic acid comprises at least 14 carbon  
30 atoms and at least one aromatic ring, and  
wherein the components (A), calculated as  
metal oxide, and (B) are used at weight  
ratios from 98:2 to 70:30.

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- (II) drying the modified metal oxides or metal aqua-oxides, and
- (III) dispersing in organic solvents to get a dispersion
2. The process of claim 1, characterized in that as metal oxides or metal aqua-oxides, such metal oxides or metal aqua-oxides containing aluminium, preferably aluminas, alumina hydrates, particularly preferred boehmitic or pseudoboehmitic aluminas, aluminum silicate, or Si/Al mixed oxides are employed.
3. A process according to any one of the preceding claims, characterized in that the organic sulfonic acid is toluenesulfonic acid, preferably *p*-toluenesulfonic acid.
4. A process according to claim 1 or 2, characterized in that the organic sulfonic acid is an organic compound of the  $R-SO_3H$  type, in which R is an alkyl-substituted aromatic hydrocarbon residue with 16 to 24 carbon atoms.
5. A process according to any one of the preceding claims, characterized in that the metal oxides or metal aqua-oxides and the organic sulfonic acid are brought into contact at temperatures from 0 to 140°C, preferably from 0 to less than 90°C.

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6. A process according to any one of the preceding  
5 claims,  
characterized in that the metal oxides or metal  
aquoxides are brought into contact with the organic  
sulfonic acid for a period from 30 seconds to 7  
10 days, preferably from 30 to 90 minutes, and pre-  
ferably with stirring.
7. A process according to any one of the preceding  
claims,  
15 characterized in that the modified metal oxides or  
metal aquoxides are dried by spray drying, freeze  
drying, microwave drying, drying in supercritical  
solvents, filtration, contact drying, or rotary drum  
drying.
- 20 8. A process according to any one of the preceding  
claims,  
characterized in that the modified metal oxides/  
metal aquoxides are dispersible in organic solvent  
as dispersions having a solid content of 10 to 35  
25 wt%, preferably 20 to 30 wt%.
9. A process according to any one of the preceding  
claims,  
30 characterized in that the modified alumina hydrate  
is processed into molded articles by extrusion, pel-  
leting, or spherical drop forming processes.

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10. A process according to any one of the preceding claims,  
5 characterized in that the metal oxides or metal aquoxides are taken up in an organic solvent and this solvent is exchanged for a second solvent.
11. Metal oxide or metal aquoxide dispersion obtainable  
10 by the use of a dispersant and a metal oxide or metal aquoxide according to any one of the preceding claims, wherein the dispersant
- a aprotic polar organic solvents,
  - a protic, polar organic solvents having at least  
15 two carbon atoms, and/or
  - a apolar organic solvents.
12. Metal oxide or metal aquoxide dispersion of claim  
20 11, characterized in that the dispersion contains an additive of at least one organic polymeric/oligomeric viscosity-adjusting agent, preferably cellulose, a cellulose derivative, a poly-acrylate, or a polyvinyl alcohol.
- 25 13. Metal oxide or metal aquoxide dispersion of claim 11,  
characterized in that the dispersant is a solvent-based paint or lacquer or a water-insoluble  
30 plastics.

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14. Use of the metal oxides or metal aquoxides  
5      dispersions of claim 11 for preparing coatings,  
         preferably transparent coatings on foils,  
         metals/metal oxides, glass, PVC, and other plastics.
15. Use of the metal oxides or metal aquoxides  
10     dispersions of claim 11 for the production of  
         catalyst carrier.
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